
Meridian Network Services Drop Back Busy/Off-Hook Queuing

Introduction

This document describes the Meridian Network Services (MNS) Drop Back Busy and Off-Hook queuing features which are available across an ISDN network.

The MNS DBB feature provides Drop Back capability at a tandem node as a call is being set up. All network calls which are blocked at a tandem node are dropped back to the originating node where the next alternative is used.

The MNS OHQ feature provides the originator of a network call control over whether Off-Hook Queuing is to be provided at a tandem node or not. The Off-Hook Queuing mechanism itself is unchanged from the original OHQ feature provided for non ISDN (ESN) networks. Therefore, all existing eligibility criteria must be met to allow this feature to function.

This feature effectively provides the originating node control over network calls using MNS.

Definition of terms

- DBB Drop Back Busy
- ESN Electronic Switched Network
- ISDN Integrated Services Digital Network
- MNS Meridian Network Services
- NARS Network Alternate Route Selection
- NAS ISDN Network Attendant Service

- NASA Network Attendant Service Active
- OHQ Off-Hook Queuing
- PRA Primary Rate Access
- RLB Route List Block

General description

This feature provides network cells Drop Back Busy (DBB) capability across an ISDN network. All MNS calls which are blocked at a tandem node are dropped back to the originating node, where the next alternative is used.

MNS calls are also provided with an Off-Hook Queuing (OHQ) option. This provides the originator of an MNS call control over whether queuing is to be provided at any tandem node of an ISDN network. The queuing feature is set up in the same manner as ESN OHQ. The existing ESN Off-Hook Queuing criteria must be met in order for a call to be queued at a tandem node. That is, if the originating node has the IOHQ option set, and all routes in the initial route list at a tandem node are busy, then the following ESN OHQ criteria must be met:

- At least one of the trunk routes in the initial set of routes in a route list is defined as being eligible for OHQ.
- The network class of service (NCOS) assigned to the calling party is defined to permit OHQ.
- The probability that the call will timeout in the OHQ before a trunk becomes available is below a specified threshold.
- The OHQ feature is enabled for the customer.

Depending upon the IDBB and IOHQ options selected at the originating node, a call at a tandem location will have the following alternatives:

- Drop Back to the originator if all routes in the initial set are busy, and use the next alternative at the originating node.
- Off-Hook Queue if all routes in the initial set are busy, then Drop back to the originating node upon OHQ timeout.

- Off-Hook Queue if all routes in the initial set are busy. Upon OHQ timeout, attempt routing via the extended set. If all routes in the extended set are busy, then Drop Back to the originating node.
- Drop Back to the originator if all routes in the initial set and extended set are busy (DEFAULT).

These options are applicable to any MNS call over an ISDN network.

Assumptions and limitations

Feature limitations

The MNS DBB and OHQ features are supported only for network calls over an ISDN network. Non-ISDN calls are not given DBB or OHQ treatment as specified in this document.

The ESN OHQ must be set up in order for the MNS OHQ feature to operate.

Packaging

This feature is packaged under the Originator Routing Control package. It is assumed that the NASA prompt in overlay 17 has been set to YES to allow use of ISDN Supplementary Services.

To support the DBB feature, the NARS, NCOS, FCBQ, and BRTE packages must be equipped. Any packages required to support ISDN/PRA must be equipped.

Real-time impacts

The MNS DBB and OHQ features use existing call mechanisms, thus no significant real time impact is expected.

Memory impacts

Data store

This feature uses 3 bits of data store memory in each ESN Route List Entry Block.

Program store

This feature adds less than 100 words.

Hardware environment

The DBB feature requires ISDN capabilities.

Feature operation

Each ESN route list entry block has an MNS DBB and an OHQ field associated with it. These fields define the IDBB and IOHQ option to be used at a tandem node.

The IDBB and IOHQ options are never reset at a tandem node—even if the feature is not supported at that node. That is, DBB or OHQ treatment at any tandem node is based upon the IDBB or IOEQ option set at the originating node.

When a call is initiated, the IDEB and IOHQ options are sent with the call setup information. The remote node will act according to the IDBB and IOHQ options received in the call setup message. The options available at a remote node are:

- Drop Back to the originator if all routes in the initial set are busy.
- Off-Hook Queue if all routes in the initial set are busy, then Drop Back to the originating node upon OHQ timeout.
- Off-Hook Queue if all routes in the initial set are busy. Upon OHQ timeout, attempt routing via the extended set. If all routes in the extended set are busy, Drop Back to the originating node.
- Drop Back to the originator if all routes in the initial set and extended set are busy. This is the default option.

A blocked network call will drop back to the originator regardless of the cause. That is, drop back will take place if trunks are busy, disabled, in maintenance, or due to call connection limitations.

With the Message Intercept feature equipped, the user could receive the message intercept voice response instead of the Off-Hook Queuing tone.

OHQ eligibility at a tandem node is determined by the current ESN OHQ eligibility criteria.

Example

Figure 43 illustrates a simple example of MNS DBB and OHQ operation.

Figure 43**Example of MNS DBB and OHQ operation**

Node A:

First alternative = B

Second alternative = D

(extended set probably via public exchange)

Options:

Drop Back Busy (IDBB):

DBA—Drop Back if all routes in the initial and extended sets are busy

DBI—Drop Back if all routes in the initial set are busy

Off-Hook Queuing Options (IOHQ):

NO—No off-hook queuing

YES—OHQ if possible at tandem node (if OHQ enabled for the node)

The possible scenarios for the case in which Set A dials the DN of Set D, are as follows:

- 1** IDBB = DBI and IOHQ = NO: If all routes in the initial set between Node B and Node C are busy, the call drops back to Node A and the next alternative is used, if available.
- 2** IDBB = DBI and IOHQ = YES: If all routes in the initial set between Node B and Node C are busy, then OHQ is provided. Upon OHQ timeout, the call drops back to Node A and the next alternative is used, if available.
- 3** IDBB = DBA and IOHQ = YES: If all routes in the initial set between Node B and Node C are busy, then OHQ is provided. Upon OHQ timeout, routing via the extended set is attempted. If all routes in the extended set are busy, the call Drops Back to Node A and the next alternative is used, if available.
- 4** IDBB = DBA and IOHQ = NO (Default options): If all routes in the initial and extended set between Node B and Node C are busy, the call drops back to Node A and the next alternative is used, if available.

Feature administration

Overlay 86

The MNS DBB and OHQ options are administered via overlay 86 through addition of the IDBB and IOHQ prompts, respectively. The IDBB and IOHQ prompts only appear when administration is performed on an entry in a Route List block (RLB), and the following conditions are met;

- 1 The ISDN and Originator Routing Control packages are equipped.
- 2 The user has entered YES in response to the ISDN prompt in the customer data block.

If the above conditions are met, the IDBB and IOHQ prompts appear following the FSNI prompt as follows in Table 56:

Table 56
IDBB and IOHQ prompts

Prompt	Response	Comments
feat	rlb	route list block
rli		route list index
entr		route list entry number
fsni		free special number screening index
IDBB		ISDN Drop Back Busy option
	(DBA)	Drop Back if All routes busy
	DBI	Drop Back if Initial set busy
IOHQ		ISDN Off-Hook Queuing option
	(NO)	No Off-Hook Queuing (DEFAULT)
	YES	Off-Hook Queue

The MNS OHQ option gives the originating node control over the ESN OHQ feature at a tandem node. Therefore, ESN Off-hook Queuing must be configured at a tandem node for this option to take effect. Furthermore, the existing ESN OHQ eligibility criteria must be met.

System utilities

Sysload

No conversion is required.

Feature interactions

- 1** Electronic Switched Network (ESN)
DBB relies on the ESN dialing plan and routing mechanisms. ESN must be packaged with DBB.
- 2** ESN Off-Hook Queuing (ESN OHQ)
ISDN OHQ provides the originating node control over the ESN OHQ queuing feature at a tandem node. Therefore, ESN OEQ must be set up for ISDN OHQ to operate.
- 3** ISDN Network Attendant Service (NAS)
NAS routing will take precedence over ISDN DBB.
- 4** Message Intercept
With the Message Intercept feature equipped, the user could receive the message intercept voice response instead of the Off-Hook Queuing tone.